Characteristics of Patients Readmitted to a Rural Tasmanian Inpatient Psychiatric Unit: A One Year Snapshot

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A report submitted as partial requirement for the degree of Master of Psychology (Clinical) at the University of Tasmania, 2015

I declare that this report is my own original work and that contributions of others have been duly acknowledged.

Ella Edith Anderson

17th of September 2015

Acknowledgements

Firstly, I would like to thank my supervisors Dr Sabrina Martin, Dr Heather Bridgman and Professor Douglas Paton for their ongoing support and encouragement. Working with you all has been an invaluable experience. Particular thanks for the opportunity to undertake a placement with the Adult Community Mental Health Team. This has been a challenging and rewarding experience not least due to the very human context it has provided for the research. I could not have asked for a greater bunch of people to go through my degree with (even if most of you live in the South), having a supportive group of people around me made it all the more rewarding; from providing the Northerner with a place to sleep, thanks Annie and Tamara, to just being wonderful people, I think the last two years would have been much harder without you all! Special thanks to Sian Balmer and my fellow Northerner Michelle Dicker for their support and encouragement, you are both amazing people and I am honoured to call you my friends. A big thank you also to Steph Ranson, having someone who is not involved in the madness of a master degree has provided an invaluable link to reality and you are just an all-round amazing friend.

Last but not least to my family, I would not be where I am today without your love and support, I am forever grateful to have you in my life. I promise all the stress has been worth it and I will soon start paying you back for all the hours you have put into my (lengthy) time at university. Callum you have continued to be my comic relief and this time around actually provided material assistance (which you will have noticed was not asked for the night before the assignment was due), though jokes about psychology versus engineering are starting to get old. From proof reading to computer maintenance Mum and Dad you have been amazing, putting two kids through university is a feat to be proud of and I could not ask for better role models in my life.

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Word Count - 9548

Abstract

Psychiatric hospital readmission involves only a small percentage of the general population, but has significant financial costs to the services involved. Readmission also takes an often unrecognised toll on the people stuck in the 'revolving door' (Botha et al., 2010; Frick et al., 2013). Readmission rates were identified as a key area of concern for a psychiatric unit, Spencer Clinic, based at the North West Regional Hospital in a rural part of Tasmania. Prior research has identified multiple factors linked with an increased likelihood of being readmitted, but such research has mainly been limited to urban hospitals, with Australian rural readmission rates under researched. The current study reviewed patient records for 271 individuals aged 18 years and older who were admitted to the Spencer Clinic in 2014. Results indicate that those who were readmitted to the Spencer Clinic were significantly more likely to have an intellectual disability, be unemployed or receiving a pension. There was also a trend towards significance indicating that those with a diagnosis of schizophrenia were also more likely to be readmitted. The current findings suggest that readmission is influenced by more than a person's diagnosis, but the interplay between diagnosis and the social factors at work for the individual. Future research could focus on exploring possible interventions for those with an intellectual disability and mental illness to help decrease the number of admissions these people experience and increase their coping skills in the community.

Introduction

Mental illness is one of the top three causes of years lost to disability (De Silva, McKenzie, Harpham, & Huttly, 2005). Over the past ten years in Australia, progressive increases in mental health presentations have led to an increase in hospital costs (Brunero, Fairbrother, Lee, & Davis, 2007). While in the past greater focus has been given to preventing physical illness, injury and disability, mental health has been receiving increasing attention. In particular, attention has turned to the concern of readmission due to mental health issues (Kobau et al., 2011), not least because readmission rates are often used as a key indicator of a hospital's performance (Lyons et al., 1997). More importantly however, the human costs in terms of poorer social outcomes, increased disability, unemployment and social supports associated with readmissions has been highlighted in multiple studies (Bobo et al., 2004; Botha et al., 2010; Frick et al., 2013; Vigod, Taylor, Fung, & Kurdyak, 2013). The social stigma attached to mental illness is heightened for those who are repeatedly admitted impacting greatly on their functioning in day to day life (Rüsch et al., 2014).

Readmission

Individuals that are repeatedly admitted to hospital are a small percentage of the general population, but represent a considerably larger percentage of admissions and subsequent costs, giving rise to the term 'revolving door' to describe those who repeatedly find themselves readmitted to hospital (Frick et al., 2013).

While there is limited research in an Australian context, particularly in rural settings, in the United Kingdom (UK) data indicates that 20% to 40% of psychiatric patients are readmitted within six months of discharge (Simpson et al., 2014). Bobo et al. (2004) studied repeat psychiatric admissions at a single United States (US) military tertiary care hospital, finding that of the sample of 814 individuals, readmissions accounted for 37% of hospital bed days, while being only 14% of the participants during a single year. In a UK study 11.6% of

patients were readmitted within 99 days of discharge and 24% were readmitted within the year (Hodgson, Lewis, & Boardman, 2001). These figures highlight that a relatively small group of people are using a much larger percentage of resources than the average patient, which not only leads to poorer quality of life for the patient, but also to increased costs and the redirection of resources which could result in reducing the quality of service available to others.

Factors previously implicated in psychiatric readmission include poor self-care, greater severity of symptoms, chronic illness, less family involvement and comorbid substance abuse (Brunero et al., 2007; Lyons et al., 1997). An Australian study found that younger people, mood and anxiety disorders were all significantly related to repeat admissions (Brunero et al., 2007). Hodgson et al. (2001) found that a diagnosis associated with psychotic symptoms such as schizophrenia were predictive of hospital readmission. Schizophrenia has been identified in multiple studies as a risk factor for hospital readmission (Botha et al., 2010; Hendryx & Ahern, 1997; Silva, Bassani, & Palazzo, 2009). Additionally, comorbidity such as intellectual disability are associated with increased hospital readmissions. A Canadian study found that compared to the general population those with an intellectual disability were more likely to have multiple admissions (Lunsky & Balogh, 2010). While comorbid substance use has also been linked to readmissions (Anderson, Ramo, & Brown, 2006; Bobo et al., 2004; Boyer et al., 2011; Fontanella, 2008). Valeski et al. (2007) also suggest that the circumstances of the person's admission can impact on the person's chances of readmission. Valeski et al al. (2007) found that patients who were court ordered to be admitted to hospital were less likely, as compared to psychiatrist ordered or voluntary admissions, to be readmitted.

Research to date has mainly focused on individual functioning and factors for readmission, without addressing larger scale community based factors. A failure to do so

identifies a potentially significant gap in research with Shinn and Toohey (2003) arguing that the exclusion of the community contexts in which mental health issues develop and are managed leads to a failure to accommodate significant precursor and recovery influences. Shinn and Toohey (2003) use the term 'context minimisation' to describe this. As Hendryx and Ahern (1997, p. 148) stated "individuals and communities cannot exist independent of each other", yet the impact of community factors on people's psychological health are often ignored. Community factors play an important role in people's mental health and in order for a comprehensive mental health plan to be constructed, factors outside the individual need to be taken into account (Anakwenze & Zuberi, 2013). Furthermore, Seligman and Csikszentmihalyi (2000) argue that both individual and community factors and the interactions between them need to be the focus of interventions to develop comprehensive care models. The inclusion of multiple levels when considering readmission rates, allows for more comprehensive mental health planning and service delivery.

Indeed Lyons et al. (1997) stated that the success of the hospital intervention may have little impact on the chance of being readmitted with readmission rates being more strongly linked to the course of the illness, self-care and the quality of care available in the community. This highlights the importance of continued mental health care upon discharge, not only to reduce the number of readmissions and the related costs, but the negative consequences to the patients themselves (Pfeiffer et al., 2012).

Tasmanian Context

The Spencer Clinic and Adult Community Mental Health Service (ACMHS), service North West (NW) Tasmania covering two main population centres, Burnie and Devonport, and more remote King Island, West Coast and Kentish areas.

In 2014, readmission rates were identified as an area of concern for the North West Regional Hospital's psychiatric inpatient ward, Spencer Clinic. There was a need to

understand the factors contributing to patient's readmission to hospital and the factors that might contribute to greater support. Identification of these factors could potentially lead to less admissions and greater positive outcomes for patients in the community. The ACMHS supports clients once discharged from hospital and actively work to reduce hospital admissions by managing clients in the community. The majority of clients accessing the Spencer Clinic and ACMHS have severe and persistent disorders such as schizophrenia, bipolar, major depression, personality and anxiety disorders. Those admitted to Spencer Clinic are at risk of self-harm or harming others or who due to the severity of their presentation are unable to be managed in a community setting, highlighting the impairment of those who are readmitted, as these people continue to be at risk even after hospital admission and usually ongoing support in the community (Statewide Mental Health Services, 2012).

The NW area faces several challenges identified in the literature as risk factors for readmissions with the first being remoteness. The Accessibility/Remoteness Index of Australia (ARIA) quantifies "remote status" within Australia, with values ranging from 0 (highly accessible), to 15 (highly remote) (National Centre for Social Applications of Geographical Information Systems (NCSAGIS), 2008). The NW region that ACMHS services ranges from 2.4 for outer regional areas such as Burnie to 15 for King Island (NCSAGIS, 2008). Such a diverse geographic range in itself creates challenges for the treatment and support of people living in these areas. As De Silva et al. (2005) state there are wide variations in the rates of mental illness upon comparison of different geographic areas, this highlights the need for further investigation of the possible social and environmental impacts of mental illness and subsequent admissions. By understanding the factors impacting on people's likelihood of being readmitted, cost effective measures can be put in place to prevent readmission and manage these rural areas (Kobau et al., 2011). It also identifies how

making better use of already present community resources could represent a cost effective approach to mental health service delivery.

The significance of this derives from correlational evidence that hospitals located in semirural areas, which have fewer mental health resources available, had the highest rates of readmission (Fontanella, 2008). Similarly, Romansky, Lyons, Lehner, and West (2003) found a significant relationship between geographic locations with fewer mental health services and readmissions. This makes it all the more important to identify contributing resources, including those external to the health care system and utilise these resources effectively to improve the outcomes of psychiatric patients. Firstly, there is a need to understand what these resources are and how they function within the community; analysis of rates of readmission across the different types of outpatient services suggests that some people were not receiving adequate support when discharged from hospital (Romansky et al., 2003). This supports Lyons et al.'s (1997) assertion that readmissions result from inadequate care upon discharge, with alternative community based resources not being utilised, insufficient or unavailable, increasing the likelihood of people being readmitted. Romansky et al. (2003) argues that to maintain the gains made during a patient's hospitalisation better quality of discharge planning and outpatient care are needed. This care can be informed by an understanding of the factors involved in readmission and how they interact, and how community based factors can be identified and interventions developed to facilitate continuing recovery and reduced readmissions in community settings.

Protective factors against being readmitted include higher levels of education, employment and being involved in a relationship (Frick et al., 2013). On the other hand insufficient education and training, substance addiction, unemployment and unsuitable housing are all associated with increased likelihood of readmission (Lee, Crowther, Keating, & Kulkarni, 2012). With these factors in mind, the NW of Tasmania and Tasmania more

generally has some of the lowest levels of education and employment in Australia. The West and NW of Tasmania has a youth (15-24 year olds) unemployment rate of 21% (Brotherhood of St Laurence, 2014). Overall there is an unemployment rate of 7% in the West and NW as compared to 6.4% in Tasmania and 5.6% in Australia (Australian Bureau of Statistics, 2013).

Boyer et al. (2011) argued that being single and/or homeless highlights the lack of social support and the increased social disability these people experience when trying to deal with their mental illness. While Tasmania does have the lowest number of homeless per capita in Australia, 24% of the homeless in Tasmania can be found in the West and NW (Shelter Tasmania, 2014). This has important implications for mental health, those people who are able to maintain their own home or live with family or friends have greater social networks to call upon as compared to those needing to live in boarding houses or temporary accommodation (Browne, Courtney, & Meehan, 2004). Having a supportive social network, as defined by emotional and instrumental support as well as having sense of community, is a protective factor in relation to mental illness and helps to promote people's overall health (Hendryx & Ahern, 1997). Browne et al. (2004) assert that as a person's mental illness progresses the further their standard of living deteriorates, which in turn has implications for their health, creating a vicious circle. Protective factors such as having a partner and children would all be difficult to attain if homeless (Bobo et al., 2004; Frick et al., 2013). While homelessness may negatively impact on a person's mental health and increase the likelihood they will be readmitted, homelessness is not easily fixed. Rosenheck et al. (2001) found that achieving stable housing among those with a serious mental illness was affected by several factors beyond the individual, including social capital, affordability of housing and the degree of integration between service systems. Hendryx and Ahern (1997) argue that the focus of the literature has been on the support from close family and friends with little understanding and research going towards understandings of the community level variables (e.g.

accommodation services, community mental health services) that affect people's mental health. This finding again highlighting the need to investigate factors impacting on readmission rates beyond the individual.

One of the common focusses of the above research is on the negative influences on people's mental health and wellbeing. As Seligman and Csikszentmihalyi (2000) argue, the attention bestowed upon the pathology of mental health neglects the aspects of people's lives that increase their wellbeing and assist in creating a more positive community, with these being interdependent. Seligman and Csikszentmihalyi (2000) argues that there are aspects of people's lives that can create buffers against mental illness and also assist with recovery, such as social support, stable housing and access to services. This is supported by studies which highlight the factors that can reduce the likelihood of people being readmitted. Studies have found that having children (Bobo et al., 2004) and a partner (Frick et al., 2013) are protective factors against readmission, while less family involvement is predictive of readmission (Lyons et al., 1997). The above findings highlight the gap in the readmission literature concerning the impact of social context, such as stressors precipitating admissions, employment opportunities and remoteness/distance to services, all of which might provide not only a clearer understanding of the factors that impact readmission rates, but cost-effective ways to reduce readmissions.

While demographic factors, clinical factors and social context may not always be amenable to change, they can inform treatment and discharge planning (Fontanella, 2008). Knowing what factors are predictive of readmission can inform how people are treated and what measures are put in place to assist in preventing readmission upon discharged. Someone who is homeless will face a different set of challenges compared to someone who has the support of their family. Being aware of the risk factors at multiple levels, demographic, clinical and social, is the first step in better understanding readmission. It is

also important to consider how these levels interact with one another. As an example, people with similar demographic and clinical factors may have different readmission rates because of the social context within which they exist.

Social Context

Social capital or the links within communities has an important bearing on mental health outcomes. Latkin and Curry (2003) measured social integration by the level of church involvement finding an inverse relationship between social integration and depressive symptoms. Additionally, economic insecurity, which is a major impediment in the NW of Tasmania, has been linked to anxiety, depression and psychological distress (Anakwenze & Zuberi, 2013). Studies have found that high social economic status (SES) promotes a sense of efficacy and even physical health, arguably it is reasonable to assume that the low SES encountered in NW Tasmania is contributing to a reduced sense of control and as outlined above is contributing to poor mental health. Indeed, Anakwenze and Zuberi (2013) argue that the relationship between poverty and mental health is bidirectional. Stating that poverty contributes to the development of mental illness and as a consequence mental illness reinforces the person's poverty. Supporting this argument is the finding that the urban poor are over represented in the incidence of mental health problems (Anakwenze & Zuberi, 2013). Furthermore, in a systematic review of social capital studies De Silva et al. (2005) found that there was strong evidence for higher levels of social capital being linked with lower risk of mental illness.

Latkin and Curry (2003) argued that people who are unable to control the stressors within their community and lack the needed resources to be able to move away from the community have poorer mental health outcomes. It is proposed that neighbourhoods with high levels of disorder, such as vandalism and graffiti, act as visible signs that the residents lack social control (Anakwenze & Zuberi, 2013). This represents a chronic stressor to those

within the community, impacting on their mental health, with disorder acting as a perceived threat to the community (Anakwenze & Zuberi, 2013). Latkin and Curry (2003) argued that while depression is often conceptualised as an individual problem their findings suggest that the influences on people's mental health may come from a neighbourhood level. Additionally, neighbourhood poverty may impede the development of social relationships that might otherwise buffer against negative environmental factors (Latkin & Curry, 2003). This argument is further supported in a study of homeless individuals with a serious mental illness, where social capital was predictive of greater access to support and assistance via a public housing agency (Rosenheck et al., 2001). Additionally, higher social capital was associated with a higher probability of the participants finding accommodation at a 12 month follow up (Rosenheck et al., 2001). These findings support the argument that the environment people reside within plays a significant role in their mental health, however this is largely overlooked in favour of studies looking at demographic and clinical factors.

Cultural Differences

It is important to note that the before mentioned research has been largely conducted in the United States of America and Canada, with significantly less research conducted in the Australian context. The Australian health system is very different from its Northern America counterparts and this calls for Australia specific research into readmission rates. While the United States and Australia are both individualist countries, they differ in terms of vertical and horizontal dimensions of individualism. Individualistic cultures focus on a person's goals and that of their groups, people are seen as independent and responsible for themselves (Maheswaran & Shavitt, 2000). Within horizontal individualistic societies such as Australia, equality is valued and people see themselves as having the same status among others within the society (Nelson & Shavitt, 2002). This impacts on the way health care systems are run

and designed, thus also potentially leading to different readmission patterns and contributing factors.

There is also a lack of research into rural areas, where access to resources and support may already be limited. Vukic, Rudderham, and Misener (2009) argue that the metropolitan origins of many health models can affect their applicability in rural areas and calls for there to be specific research in rural contexts. The dearth of research in rural settings highlights a need for research into unique community factors that could impact on mental health and readmission rates. Identifying those patients who are at an increased risk of being readmitted may help to create better case review and management strategies to prevent readmission (Brunero et al., 2007).

The above literature highlights a current deficiency in the research on psychiatric readmission rates in an Australian context, particularly in a rural setting. The literature identifies multiple factors that contribute to readmission, such as clinical (e.g. diagnosis, severity of symptoms) and demographic (e.g. relationship status, housing) factors. There is less research into community factors such as social support that could also have significant contributions towards readmission rates. Collectively the research indicates that readmission rates are not due to any one single factor, but a combination which lead to significant costs for the people suffering from mental illness in terms of poorer social outcomes, increased disability, unemployment and reduced social supports (Bobo et al., 2004; Botha et al., 2010; Frick et al., 2013; Vigod et al., 2013). Mental illness is one of the top three causes of years lost to disability, a greater understanding of the factors leading to readmission is the first step in being better able to assist those suffering (De Silva et al., 2005).

Aims

The aim of this explorative study was to investigate the relationship between patient, clinical, treatment and community factors that impact on the mental health readmission of

patients attending the Spencer Clinic at the North West Regional Hospital. Although this research was exploratory the following hypotheses were made. It was predicted that the number of readmissions will be greater for those with comorbidity (e.g. intellectual disability, substance use) and diagnoses of schizophrenia. Also, being in a relationship would be predictive of fewer readmissions.

Method

Design

This exploratory study was conducted in the Mental Health Service NW (MHS NW) psychiatric inpatient ward, Spencer Clinic, in Burnie, Tasmania. This is the only public psychiatric inpatient ward in the NW of Tasmania and is only one of three within Tasmania. For the purposes of this study readmission was defined as anyone who presented and was admitted to the Spencer Clinic more than once in 2014. Readmission within 28 days of discharge was also examined, as this is a national key performance index (KPI). The dependent variable admission, had two levels; patients admitted once and those admitted two or more times. The independent variables were marital status, place of residence, diagnosis, comorbidity (intellectual disability and substance use), stressors, employment and pension status.

Participants

The participants were 271 patients, aged 18 years and over, who were admitted to Spencer Clinic in 2014. The sample consisted of 136 women, mean age 42.82 (SD = 15.66, range 18-94 years) and 135 men, mean age 42.38 (*SD* = 16.09, range 18-89). All those who had been admitted were included in the study, as to access these services the patients must have been identified as in need of psychiatric care. Stricter criteria, such as only those who had a diagnosed mental disorder, were not utilised as this may have unnecessarily exclude people from the study who for example may had complex presentations difficult to diagnose. This approach reduced the risk of the sample being unrepresentative of the breadth of presentations managed by MHS NW.

Of the 288 people admitted in 2014, 17 people were excluded from the final analysis. Eleven people were excluded because at the time of admission they were younger than 18 years. A further three people were excluded because they were admitted to the Spencer

Clinic as part of scheduled electro convulsive therapy (ECT) and were thus not considered to be crisis admission, as this was a day procedure. Finally, three people were excluded due to insufficient data being available, due to early discharge or still being on the ward when data collection was completed.

In total 208 people were admitted once and 63 people were admitted two or more times in 2014. Within the total sample there were 356 admissions of which, 148 of these were accounted for by patients who were admitted two or more times within that period.

Data sources and collection procedures

Patient records were retrospectively examined from the 1st of January to the 31st of December 2014. The time period of one year was selected, so as to have a small window for repeat visits to increase the likelihood that the events underlying the visits were clinically related (Frosch, dosReis, & Maloney, 2011). The data was sourced from the hospital case records and admission records.

Information regarding patients was collected from multiple systems, including:

1. The information patient manager (iPM) which contains personal details about each patient, but no clinical information. The iPM system was used to collect demographic information relating to age, gender, and place of residency.
2. Digital medical record (DMR) contains clinically relevant information for each patient, such as clinical notes and discharge summaries. DMR was used to collect information relating to the number of admissions, diagnosis, living circumstances (e.g. living alone, with family), treatment, discharge and comorbidities.
3. For your information (FYI) contains service delivery statistics such as the number of total admissions and how many patients there are per staff member. This was utilised to identify both the number of people admitted during 2014 and those who have been repeatedly admitted.

4. TRIO was utilised to ascertain if the patient or someone concerned for the patient had contacted the Mental Health Hotline prior to the person's admission to the Spencer Clinic. This was utilised to assist in ascertaining the level of previous contact with mental health services the person had prior to admission.

Analysis

Data was entered into the IBM Statistical Package for the Social Sciences (SPSS) Version 21. Descriptive statistics were examined and differences in the mean values of the dependent variable which had two levels; patients admitted once and those admitted two or more times, associated with differences in the independent variables (marital status, place of residence, diagnosis, comorbidity (intellectual disability and substance use), stressors, employment and pension status). Independent samples t-tests were used to compare the difference in the dependent variable, number of admissions, and independent variables where there were only two means under investigation. One-way ANOVAs were utilised where three or more means were being compared.

Results

Demographics

Of the 271 participants, 50.2% were female and 49.8% males, with 5.2% identifying as Aboriginal, and 1.2% identifying as Torres Strait Islander, Maori, or Aboriginal and Torres Strait Islander. The majority of the sample identified as single, as seen in Figure 1.

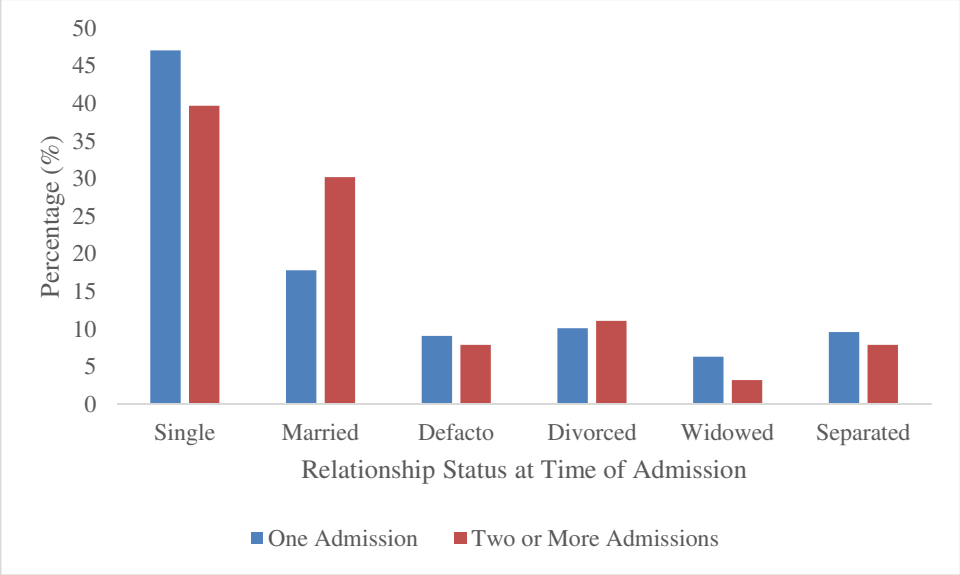

Figure 1. Relationship status of single and multiple admissions

Readmission

A breakdown of number of admissions can be seen Figure 2. Three quarters of the sample (76.8%) were admitted once, with 23.2% admitted two or more times in 2014. Figure 2 shows that people were admitted as many as five times in a single year. The 63 people who were admitted multiple times accounted for 41.57% of the total number admissions in 2014 while only accounting for 13.28% of the total number of people admitted. The average number of nights patients were admitted for was greater for those with multiple admissions as compared to single admissions (Table 1). The 63 people who were admitted multiple times accounted for 43.18% of the total number of nights spent in the Spencer Clinic during 2014.

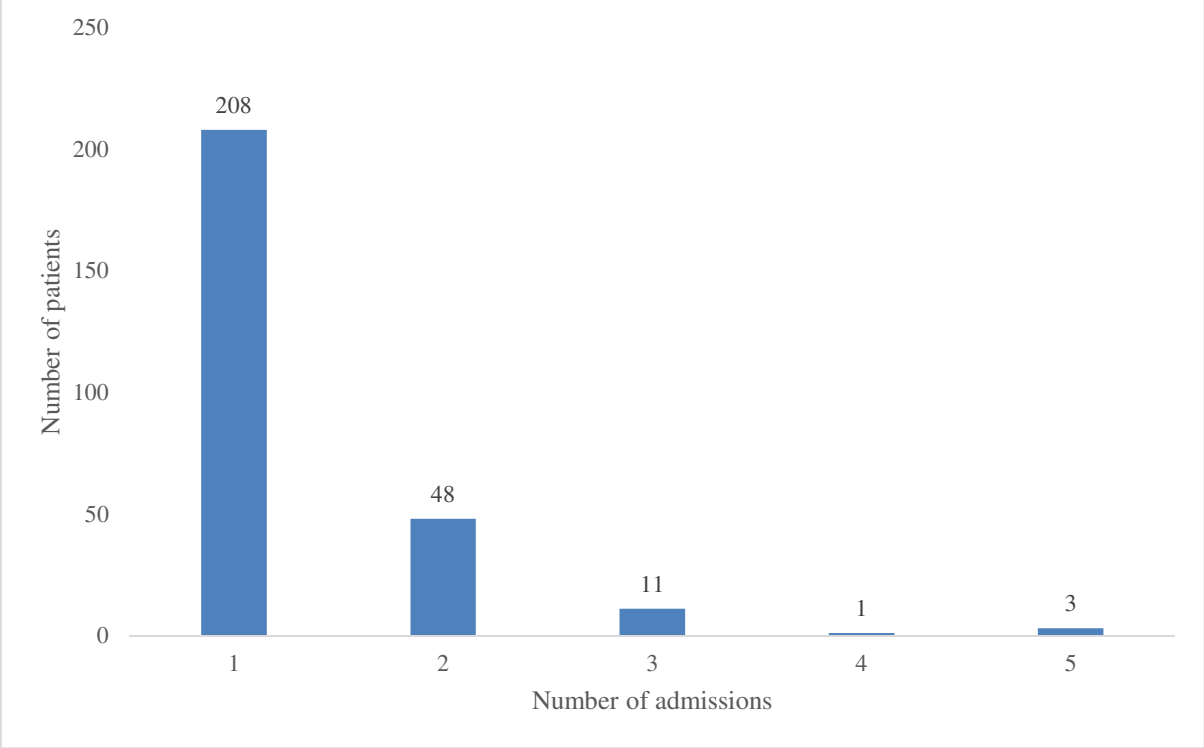

Figure 2. Break down of the number of admissions

Table 1

Average Length of Stay (number of nights) for Single and Multiple Admissions

	Single Admissions	Multiple Admissions	Total Sample
Minimum Length of Stay	0*	1	0*
Maximum Length of Stay	160	251	251
Average Length of Stay	17.28	23.4	18.7

*Note – the person was admitted and discharged within a single day.

A key national benchmark for performance is the number of readmissions within 28 days of discharge. Only 11.24% of the total sample was re-admitted within 28 days of being discharged, compared to 13.9% of people nationally (Australian Institute of Health and Welfare, 2014b).

Legal Status

It is noted that information regarding legal status was not recorded for 58.7% of patients. Legal status in the community is only recorded for those who receive community follow up after discharge, additionally it is generally only recorded if involuntary, so it can be assumed if it is unrecorded the clients were voluntarily at the time the data was collected. Upon admission 22.5% of patients were involuntarily admitted, single and multiple admissions were equally likely to be involuntary at time of admission, 22.1% and 23.8% respectively.

When in the community after discharge 11.8% of the sample remained involuntary patients for ongoing treatment in the community. When comparing those admitted once to those admitted two or more times, those admitted multiple times were significantly more likely to be an involuntary patient in the community, $t\ (269) = 2.49$, $p = .013$. A total of

19% of those readmitted were involuntary patients in the community compared to 9.6% of those admitted only once.

Employment and Pensions

Those who were admitted only once were significantly, more likely to be employed as compared to those with multiple admissions t (255) = -2.09, p = .038. Participants with multiple admissions were significantly more likely to be in receipt of a pension (e.g. disability pension), t (160) = 2.78, p = .006, see Table 2. It is important to qualify these findings in that the pension status was not recorded for a large percentage of the sample, thus the significant result may reflect the data obtained, but not the sample at large due to incomplete data.

Table 2

Percentage (%) of those Employed and on a Pension for Single and Multiple Admissions

	Single Admission	Multiple Admissions	Total
Employed	19.2%	7.9%	16.6%
Unemployed	76%	85.7%	78.2%
Unknown Employment Status	4.8%	6.3%	5.2%
Pension	39.9%	60.3%	44.6%
Unknown Pension Status	42.3%	33.3%	40.2%

Diagnosis

The most common diagnoses, regardless of the number of admissions were schizophrenia (29.9%) and depression (27.3%), please see Figure 3. The results indicate a trend towards significance when examining the primary diagnosis upon discharge, F (8, 262) = 1.96, p = .052, when comparing those with a single admission to those admitted multiple times. When examining schizophrenia 26.4% of patients admitted once had this diagnosis compared to 41.3% of those admitted multiple times, indicating that those with schizophrenia

were more likely to be readmitted. Additionally, those with a diagnosis of depression were more likely to be admitted only once with 29.8% of those with a depressive disorder diagnosis admitted once compared to 19% of those admitted two are more times.

For single admissions 30.8% of patients had comorbid mental health disorders, while 25.4% of those with multiple admissions had a comorbid disorder. There was no significant difference between those with a single admission or those with multiple admissions in terms of comorbid mental health diagnoses, t (269) = -.841, p = .402.

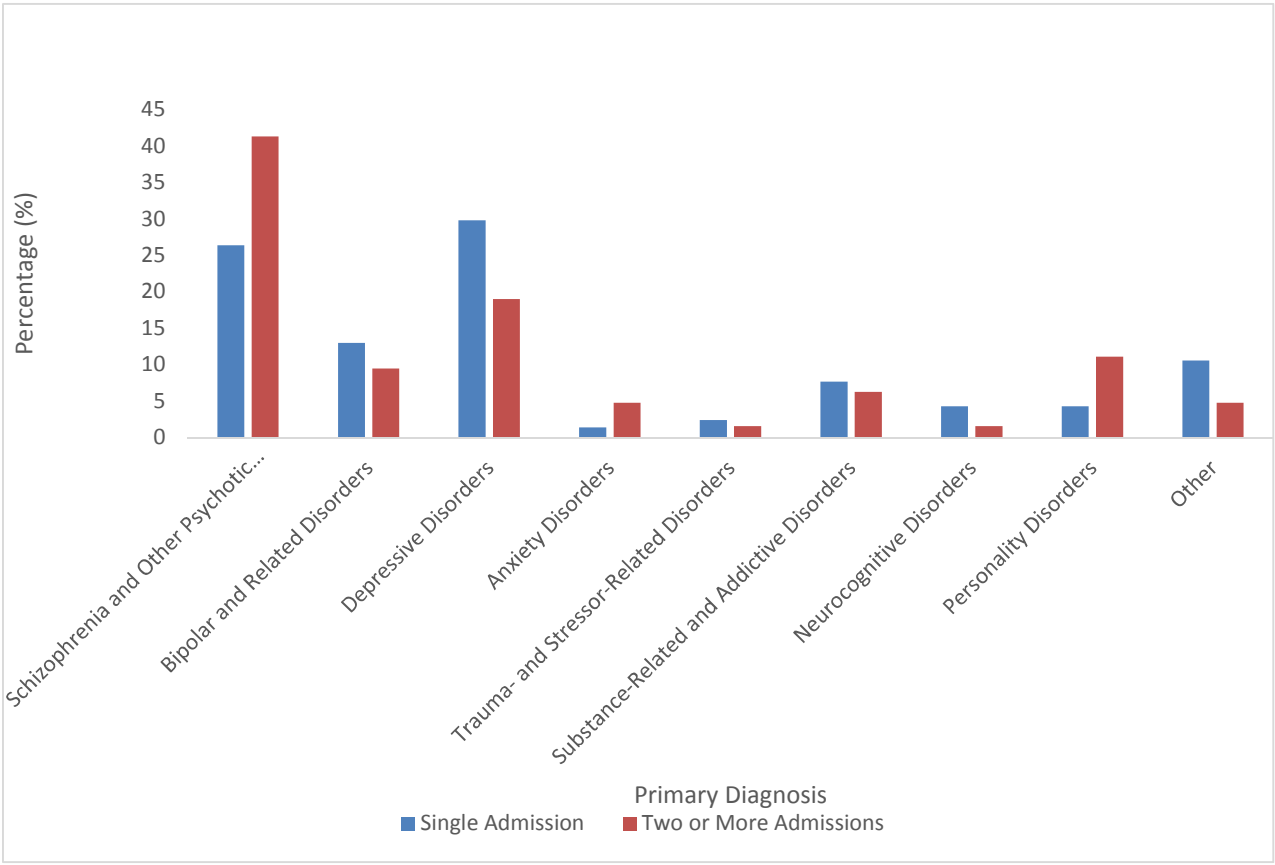

Figure 3. Primary diagnosis at time of discharge

Comorbidity

Intellectual Disability

While only 9.2% of the sample was identified as having a comorbid intellectual disability; when comparing those admitted once to those admitted multiple times there was a significant difference in the number of patients with comorbid intellectual disability, t (269) = 2.09, p = .038. With 15.9% of those admitted multiple times having a comorbid intellectual disability compared to only 7.2% of those admitted only once, please see Figure 4.

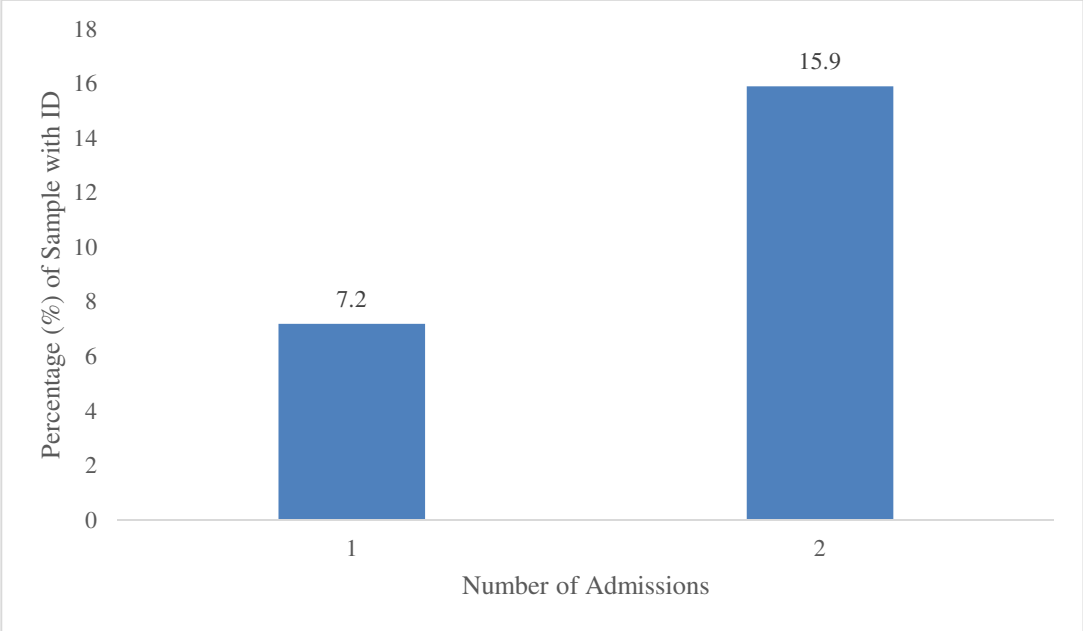

Figure 4. Percentage those with a single admission or multiple admissions with a comorbid intellectual disability.

Substance Use

Comorbid substance use disorder was found in 24% of the sample, with no significant difference being found between single and multiple admissions, t (269) = .298, p = .766, 95% CI [-.101, .137]. There was also no significance difference, t (269) = -.078, p = .938, 95% CI [-.107, .099], in regard to a reported history of substance use. There was a significant difference, t (269) = -2.135, p = .034, 95% CI [-.244, -.010], however, between single and multiple admissions in the likelihood they would be admitted under the influence of a

substance at time of admission. Single admissions were more likely to be under the influence of a substance at time of admission (27.4%) compared to 14.3% of multiple admissions presenting under the influence of a substance.

Precipitating Factors

Stressors

There were no significant differences between those admitted once and those admitted multiple times in terms of the stressors, F (12, 258) = .568, p = .867. For 31% of the sample no precipitating factor was identified as contributing to their admission. The most common stressors were those related to family (e.g. conflict), relationship breakup and bereavement. There were no significant differences between the number of stressors being experienced by those admitted only once compared to those admitted multiple times, F (3, 267) = .586, p = .625. However it is noted that due to the data recorded only the number of different stressors could be analysed (e.g. family, financial, housing, etc.) rather than the nature of the stressor (chronic versus acute).

Medication

Fourteen percent of the patients admitted to the Spencer Clinic had stopped taking their prescribed medication prior to admission, however there was no significant difference found when comparing those admitted once to multiple admissions, t (269) = .069, p = .945, 95% CI [-.141, .151].

Suicide Attempt

A suicide attempt immediately prior to admission was more likely for those with only a single admission, 16.8%, as compared to those readmitted 11.1%. However, there was no significant difference between these groups, t(269) = -1.097, p = .274

Remoteness

As can be seen in Figure 5 the majority of the sample was located in outer regional areas as defined by the Australian Standard Geographical Classification – Remoteness Area (ASGC-RA). No significant differences were found between those admitted once, compared to multiple admissions F (4, 262) = .637, p = .636 this may be in part due to the nature of Tasmania where the majority of the state is identified as outer regional (Department of Health, 2015).

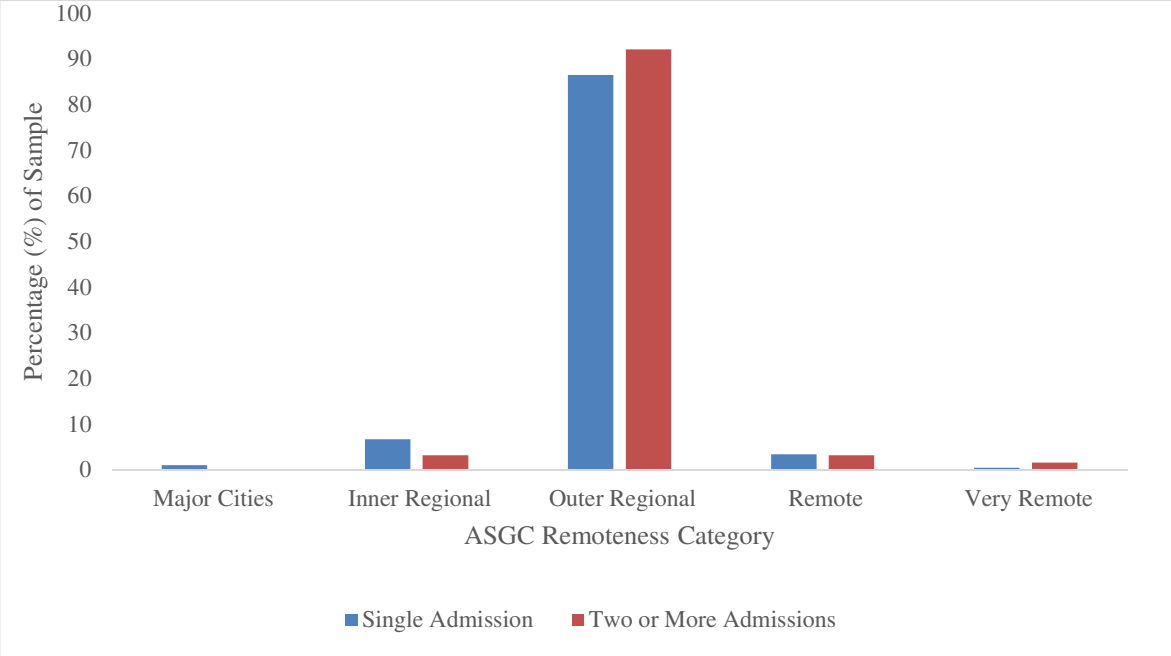

Figure 5. ASGC remoteness categories for those admitted once and multiple times.

Discussion

This study sought to explore the characteristics related to repeated inpatient admissions at the NW Regional Hospital psychiatric ward, Spencer Clinic. Readmission rates are an area of concern for psychiatric wards due to the impacts on the quality of life for patients and the increased costs associated with readmissions.

Consistent with previous research there was a trend towards schizophrenia as being a significant factor in readmission rates (Botha et al., 2010; Hendryx & Ahern, 1997; Silva et al., 2009). Also, intellectual disability was found to be a significant factor in multiple admissions, as has been found in several previous studies (Davis, Barnhill, & Saeed, 2008; Lunsky & Balogh, 2010; Tsakanikos et al., 2006). However, factors linked to readmission such as relationship status, educational attainment, housing, comorbid substance use and remoteness were either unable to be explored due to the data available or were non-significant. The implications of the findings is discussed below.

Overall, the sample in the current study is consistent with Australian data examining the demographics of those admitted to hospital. For example 6.4% of the sample identified as Aboriginal, Torres Strait Islander or Maori, which is slightly higher than the national average of 4.9% of people admitted to psychiatric wards (Australian Institute of Health and Welfare, 2014a). Of note is that Aboriginal and Torres Strait Islander people make up only 3% of the Australian population, but are proportionally over-represented in psychiatric hospitalisations (Australian Institute of Health and Welfare, 2014a). Contrary to prior research (Hodgson et al., 2001), which found that being unmarried increased the risk of readmission, there was no difference in the number of admissions based on relationship status. However, it may be the quality of the relationship rather than the existence of a relationship per se that is the protective factor for reducing readmissions rates. With research

by Lyons et al. (1997) finding that less family involvement rather than the existence of a relationship per se contributed to readmissions.

Readmission

Bobo et al. (2004) found that 37% of the observed bed-days over a 13 month period were accounted for by 117 repeat users of an American psychiatric hospital. Bobo et al. (2004) stated that this relatively small group of repeat users, 14% of the total 814 individual patients admitted, accounted for a disproportionate number of inpatient bed-days. While studies in the UK have found 20% to 40% of patients are readmitted within a single year (Hodgson et al., 2001; Simpson et al., 2014). Similar to Bobo et al. (2004) the current study identified 13.28% of the total sample being readmitted with this group accounting for a disproportionate 43.18% of the total number of nights spent in the Spencer Clinic. It is noted that Bobo et al. (2004) measured patient stays in bed-days, while the current study was based on the number of nights a patient was admitted. These findings highlight the utility of reducing readmission rates within a psychiatric setting, as those who are being admitted repeatedly during a year, are more likely to have reduced opportunities to engage in social events, establish relationships, work and study. Additionally, there are significantly greater costs for the hospital setting in caring for these patients. These factors highlight the necessity of a clearer understanding of the factors that impact on people's likelihood of being readmitted.

Legal Status

Those who were involuntary patients in the community after discharge from the Spencer Clinic were significantly more likely to be readmitted compared to voluntary patients. Valevski, Olfson, Weizman, and Shiloh (2007) found that compared to voluntary patients, court ordered patients had a lower probability of readmission, which they linked to a

longer length of stay. This was based on the argument that because they were court ordered patients had to remain in hospital until they were well again, while those who were voluntary might discharge themselves before being completely ready and thus have a greater chance of being readmitted (Valevski et al., 2007). However, these findings run counter to the current study and research by Hodgson et al. (2001) and Silva et al. (2009) which all found that involuntary patients were more likely to be readmitted to hospital as compared to voluntary patients. Hodgson and Silva also state that length of stay was a further risk factor; where the likelihood of readmission increased with increasing length of stay, which was generally indicative of greater severity of symptoms, lack of social support and insufficient discharge planning (Hodgson et al., 2001; Silva et al., 2009). This is consistent with the current findings where those patients with multiple admissions had, on average, longer lengths of stay.

Employment and Pensions

Silva et al. (2009) found that the wealthiest patients were 20% less likely to be readmitted compared to the poorest patients. The current study was not able to capture data directly on wealth, however it was found that those with employment were significantly less likely to readmitted. Patients who were receiving a pension were more likely to have a severe mental illness, thus allowing them to receive for example the disability pension. In turn having a severe mental illness, would also increase the likelihood that multiple admissions might occur. Employment or lack thereof has previously been found to be a significant factor for readmission in multiple studies (Durbin, Bondy, & Durbin, 2012; Frick et al., 2013; Hendryx & Ahern, 1997; Schmutte, Dunn, & Sledge, 2009). Simpson et al. (2014) in a pilot study enabled previously hospitalised individuals to work as mentors for patients recently discharged from hospital. While no statistically significant results were found in terms of direct benefits, it was noted that gaining employment for the mentors

themselves was an important factor for the inclusion of those who have been mentally ill (Simpson et al., 2014). This highlights that having meaningful social activities such as work are protective factors against readmission (Schmutte et al., 2009). This is particularly important given the high levels of unemployment, 21% for 15-24 year olds, present in NW Tasmania (Brotherhood of St Laurence, 2014). Given that readmission is most common for those who are unemployed, this poses a significant risk factor for those with a mental illness.

Diagnosis

There was a trend towards significance with schizophrenia being a more prevalent diagnosis for those with two or more admissions as compared to single admissions. This is in line with previous research which indicates that those diagnosed with schizophrenia are more likely to be readmitted (Hodgson et al., 2001; Silva et al., 2009). Silva et al. (2009) and Hodgson et al. (2001) argue this may be due to the more severe nature of schizophrenia and the ramifications of this on an individual's ability to work, engage in social activities and maintain healthy relationships. Odes et al. (2011) found that for those with schizophrenia the monitoring of occupational therapy functioning was of greater predictive value for future readmissions than the Brief Psychiatric Rating Score. Those with higher functioning in occupational therapy were significantly less likely to be readmitted as compared to those who have lower functioning (Odes et al., 2011). Odes et al. (2011) argue that while the focus during hospital admission is on alleviating psychotic symptoms, greater attention may need to be placed on occupational functioning in order to reduce hospital readmission rates.

One implication of the trend towards schizophrenia being more prevalent in multiple admissions is that this client group could be targeted in further analysis of factors contributing to their admissions. While also identifying interventions that may serve to reduce readmission rates for those suffering from schizophrenia.

No significant difference was found in the number of differential diagnoses explored. This was also true when examining the consistency of diagnosis from discharge to present diagnosis in the community. While research indicates that diagnostic variability does impact on the number of readmissions, (Boyer et al., 2011) this trend was not found in the present research. The reasons for this are unclear however, may be due to the limited time of the present study.

Comorbidity

Intellectual Disability

Those with an intellectual disability were significantly more likely to be readmitted during 2014. This population are at particular risk of being readmitted and there is increasing evidence to support the idea that there is a high prevalence of comorbidity between mental illness and intellectual disability (Hughes, 2009). In a Canadian study Lunsky and Balogh (2010) identified that having a mental illness and a developmental disability was associated with two or more admissions during the period of a year as compared to those with only a mental illness. Several factors have been proposed to try and account for the differences present in readmission rates for those with and without intellectual disabilities. Firstly, biological factors such as genetic disorders which may contribute to the development and severity of both mental illness and intellectual disability. More importantly for the current study there are a range of psychological and social factors at play (Hughes, 2009). Intellectual disability is associated with poor social skills, limited control over life events, difficulty in learning new information, lack of effective coping skills, communication deficits and low self-esteem, all of which impact on functioning in the community and subsequent likelihood of readmissions (Hughes, 2009). This is further supported by Davis et al. (2008) who state the recurrence of mental disorders for those with intellectual disability is in part due to the ongoing risk and vulnerability factors these individuals are faced with. Mohr et al.

(2014) highlight that a key risk factor for the development and reoccurrence of mental illness is a lack of coping skills, which is associated with intellectual disability. The implication of this is a greater need for specialised interventions and support services for those with a dual diagnosis (Davis et al., 2008). It also highlights the need for the clear assessment and diagnosis of intellectual disability due to the impact this may have on the likelihood of repeated admissions.

Substance Use

Previous research indicates that substance use and comorbid substance use disorders are indicative of an increased risk of readmission (Brunero et al., 2007; Lyons et al., 1997). However, in the current study no significant difference was found between single and multiple admissions for a comorbid substance use disorder or a reported history of substance use. Conversely, those admitted only once were almost twice as likely to be admitted under the influence of a substance as those with multiple admissions, 27.4% compared to 14.3% respectively. This may in part be due to the increased likelihood of those with a single admission being more likely to have attempted suicide, potentially via drug overdose than those with multiple admissions (no significant difference was found between readmission rates in terms of suicide attempts). A further explanation could be that these patients were relatively new drug users and their admissions were due to unexpected side-effects or the presentation of a drug-induced psychosis. Also, once admitted under the acute influence of a substance alone, with no mental illness being detected when intoxication has passed, it is unlikely that the patient would be readmitted to the psychiatric ward if they subsequently presented in an intoxicated state to the Emergency Department. Overall, however these results run counter to the established literature (Brunero et al., 2007; Lyons et al., 1997) and would be worthwhile investigating in the future.

Precipitating Factors

Stressors

No significant differences between single and multiple admissions were found when examining the types of stressors patients admitted experienced. However it is unclear whether this is a true reflection of patient's presentation or is a result of clients focussing on the most salient events leading up to their admission, thus potentially overlooking other contributing factors for their admission. If accurate, this highlights that people being admitted to Spencer regardless of the number of admissions are faced with very similar stressors. It is potentially the number of stressors and the ongoing nature of them that results in multiple admissions. Those with a single admission might be better able to adjust to and deal with the stressors in their lives, resulting in a reduce likelihood of being readmitted. Anderson et al. (2006) found that for youths who received treatment for their substance use, the factor most predictive for their future substance use was their coping ability. The relationship between coping and substance use was moderated by negative life events the youths experienced, the same could be argued to be occurring for those experiencing mental illness (Anderson et al., 2006).

This relationship supports the utilisation of the stress-vulnerability model to assist in understanding the factors contributing to readmission. Furthermore, insufficient coping skills when placed under chronic stress has been clearly identified as a key risk factor for mental illness (Mohr et al., 2014). Mental illness is associated with a large degree of stigma, for those who are repeatedly admitted this can lead to greater shame, reduced empowerment and poor quality of life (Rüsch et al., 2014). People's coping skills play a pivotal role in decreasing their likelihood of readmission, providing opportunities to develop an individual's coping skills may offer one avenue for effective intervention to reduce readmissions (Rüsch et al., 2014).

Highlighting the complex interaction between coping skills and mental illness is an Australian study looking at schizophrenia and accommodation. Results indicated that readmission was predicted by the type of housing people were discharged into (Browne et al., 2004). The study found that those discharged into their own home were significantly less likely to be readmitted, compared to those who were discharged into a for-profit boarding house. Those discharged to the boarding house had less control over their housing and were identified as needing greater support, indicating that they had reduced coping skills. Browne et al. (2004) note that as mental health declines so too does a person's standard of living, arguing that those needing to live in boarding houses were more likely to be severely disabled, with less input from social supports to aid them outside of hospital, thus reduced capacity to cope. Chronic stressors are likely to be further compounded if a person has poor coping skills, thus further increasing an individual's likelihood of readmission (Mohr et al., 2014).

Additionally, those with a comorbid intellectual disability may be at increased risk of readmission due to already having poorer coping skills and a limited capacity to adapt to stressful situations. Those with an intellectual disability are vulnerable to developing a mental illness due to a number of factors, the presentation of such a comorbidity alone is a chronic stressor, impacting on their ability to cope in day to day life (Hughes, 2009; Lunsky & Balogh, 2010). Thus, increasing their risk of readmission when discharged from hospital.

Medication

In line with prior research adherence to medication based on self-report was not found to be predictive readmission (Odes et al., 2011). While it was hypothesised that non-adherence to medication might be predictive of readmission this was not found to be the case. In part this may be due to those who are identified as being at risk of potential non-adherence

being placed on treatment orders, thus enabling them to receive their medication involuntarily.

Remoteness

While there was no significant difference between admission rates based on a patients remoteness, the non-significant finding may be in part due to a decreased likelihood that clients in more remote locations (e.g. King Island), will be sent to the Spencer Clinic and may instead be managed by local practitioners. De Silva et al. (2005) have found that geographic area is associated with significant variations in mental illness rates, indicating one potential avenue for further investigation would be to further explore the impact remoteness may have on the likelihood a person will be admitted in the first instance. The barriers for admitting and potentially readmitting someone located on King Island are far greater than someone who lives in Burnie. Potentially people in more remote locations are not being admitted to the Spencer Clinic due to the difficulties involved in gaining admission when in a remote location. Instead these people may continue to be managed in the community, where if they were located in a less remote area (e.g. Burnie, Devonport) they may have been admitted to the Spencer Clinic. Further research is needed to explore if and how patients are supported and managed in remote locations where admission to the Spencer Clinic may be difficult. This is supported by Silva et al. (2009) who found that those who lived in closer proximity to the hospital had greater ease of access and subsequently a higher number of admissions in the longer term. Potentially basing remoteness on a different categorisation procedure as compared to the ASGC criteria may assist in greater differentiation between, for example, those living within Burnie versus those in a remote setting, which with the ARIA criteria used were identified as the same remoteness rating (National Centre for Social Applications of Geographical Information Systems, 2008). Potentially comparing those based in cities versus rural areas would be of benefit for future research.

Strengths and Limitations

A strength of this study was the setting in which it was conducted. The North West Regional Hospital is the only public hospital in the region with a psychiatric ward, therefore capturing a good representation of the population being admitted. The use of multiple hospitals has previously been noted as a confounding factor of readmission literature (Vigod et al., 2013). However, it is noted that in some circumstances possible readmissions have been missed due to people being readmitted in other locations; for example older persons may have been readmitted to the Roy Fagan unit, other individuals may have been admitted to the psychiatric wards in Launceston and Hobart due to moving or there being no beds available in Burnie. In future it may be possible to complete a study utilising data from the three public psychiatric wards in Tasmania, the use of multiple hospital sites for the study of readmission rates has been completed in previous studies (Fontanella, 2008; Wuerker, 1996).

Due to the nature of the information recorded for psychiatric patients the data was collected from multiple sources. This posed several problems firstly within some systems, due to patients still actively being engaged, the patient information reflected current data rather than information gathered at the time of admission (e.g. address, relationship status). This meant for accurate information to be collected all admission file notes needed to be read and data recorded from the admission records. This was cumbersome in terms of data collection, but also highlighted the difficulties faced by clinicians in obtaining a clear clinical picture of clients presenting to the service. The information is spread across multiple records, with additionally difficulties in there at times being inconsistencies in the information gathered at admission and then reported at discharge. The collation of information regarding a patient's admission in a single document/data base maybe of value in terms of being aware of the factors affecting their admission and allow for easier comparison of readmissions to ascertain if the same factors are still present. This may also allow for information regarding

housing, relationship status and employment for example to be captured at these time points for later comparison across admissions. Whilst some data was missing due to not being recorded, an ameliorating factor was the breadth of data collection across the three systems for this study, rather relying on only on a single system.

There was a large amount of missing data for example patient's legal status in the community was not recorded for the majority (58.7%) of the sample. Additionally the majority of the sample did not have a diagnosis in the community, most likely due to referrals to different services, people who may not have lived in the area or did not go on to be case managed. However, this information was not often clear from the records the current study had access to. Few patients had their housing status recorded (i.e. owner, renting) or living arrangements (i.e. living alone, with family) meaning this was unable to be analysed. This study has highlighted gaps in the data collection methods employed by the service which in future can be revised as to provide a more comprehensive source of information, which is easier to access by clinicians potentially improving service delivery to patients.

Future Research

One area for future research would be the exploration of the nature of the stressors people are experiencing. While no significant difference was found between the types of stressors people may be experiencing (e.g. family, housing, bereavement), future research could examine acute versus chronic stressors. In line with the stress vulnerability model, those who have ongoing stressors such as family conflict or a chronic health condition, might be more likely to be readmitted compared to those experiencing acute stressors that may be short lived such as a medication change. As discussed intellectual disability is associated with an increased risk of readmission and coping skills has been identified in the literature as a key factor in the development of mental illness (Mohr et al., 2014). Further research into coping skills and their impact on the readmission rates of those with an intellectual disability

may assist in developing specific interventions to improve coping in the context of comorbidity of mental illness and intellectual disability. The identification of the significant difference in readmission rates for intellectual disability indicates the utility of developing and evaluating an intervention specifically for this population to reduce readmission rates in the longer term.

Of note is that the focus on those readmitted makes it hard to follow up those with similar conditions who do not require readmission, as this study and prior research has identified there is a relatively small number of people who are readmitted (Bobo et al., 2004). Future research needs to follow all those discharged to identify what and why readmission occurs, as for the majority of those admitted they are able to function for prolonged periods without further admissions. A focus on those not able to cope has neglected those who are successfully managing their mental illness and who might hold valuable information for improving the functioning of those less able to cope.

Further, investigation through interviews with mental health staff in remote locations may be of benefit to further explore the impacts of remoteness on the provision of mental health services. While no significant difference in the current study were found between remoteness and admission rates, as discussed this may be due to differences in the barriers associated with gaining admission to the Spencer Clinic. Additionally, differences in perceptions of mental health staff in more remote locations may also play a role. Further research to explore clinicians' perceptions towards psychiatric admission may be of value in better understanding the decisions that are made regarding the care of people suffering from mental illness in remote locations.

Future research might also explore the utility of monitoring patient's occupational therapy functioning as an indicator of readmission potential. Odes et al. (2011) found this to be a stronger predictor of readmission than the reduction of symptoms alone. While

hospitalisation is focussed on reducing symptoms and their severity, interventions that also look at other factors such as employability, social engagement and self-care would also be of importance. Greater occupational therapy involvement during admission might be of value in reducing the number of repeat admissions.

Additionally, research into those patients receiving funding or input from the community sector would be of value. A large proportion of mental health funding is going into the community sector with current research indicating that greater involvement and linking of services is a crucial factor in assisting patients to remain within the community (Lee et al., 2012). There is however, a need to further explore what impact community support actually has on patient's readmission rates and length of stay. This research could provide valuable information in regards to the types of services that are of greatest benefit in terms of improving patient quality of life and reducing readmission rates.

More complex analysis such as regression to identify the relationships between variables would be of benefit to not only identify the links between factors but also ascertain how much they contribute to readmission. In addition to further quantitative studies, the utility of qualitative research to further understand the perspectives of clinicians and patients, would add a richer understanding of the community and social factors at play in readmissions.

This study's purpose was to address the lack of research undertaken in rural settings pertaining to inpatient psychiatric admissions. This study has provided some insights into potential factors impacting on readmission rates at Spencer Clinic in NW Tasmania and has identified avenues for further research. Schizophrenia was more commonly associated with readmission, along with unemployment and of particular note those with an intellectual disability were significantly more likely to be readmitted. These results indicate that interventions targeting those at higher risk of readmission, such as those with a dual

disability, would be of value firstly to improve the coping skills of patients upon discharge and secondly to reduce the costs associated with multiple admissions. While no significant difference was found in terms of remoteness, this may in part be due to the difficulties associated with admission of patients in more remote locations. Further research into the barriers clinicians face in gaining admission for clients in remote locations is needed. This research has provided a snapshot of the people who are in need of acute psychiatric care and provided some evidence to explain readmission rates in a rural setting. Furthermore, this research has, it is hoped, provided avenues for further study most importantly into interventions that could go some way in improving the lives of those who find themselves stuck in the 'revolving door'.

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